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ADDRESS INTRODUCTORY TO THE TWENTY-SECOND ANNUAL COURSE OF LECTURES IN RUSH MEDICAL COLLEGE.

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[Published by Request of the Class.]

Young Gentlemen, Members of the Class:—

The occasion which has convened us this evening is one of no ordinary interest—to you, in view of the labors which you are undertaking, and in the associations which you are about to form—many of which, we trust, will go with you through life, bearing with them pleasing memories of the present; to your instructors in the new relations now established, by which, to some extent, we assume the responsibility of the proper improvement of your time while these relations exist. These circumstances ever render the first meeting of a medical class interesting.

It is not, however, the interest of idle curiosity, nor the

novel circumstances which surround you on first entering a medical college, which shall suggest my theme for the short time that I may detain you this evening. I remember that you are students—that you are to become medical scholars—thus I am admonished that you are here for a purpose; you would be qualified to act some honorable and useful part in the world's great drama. I speak of the progress of the race—of the conflict of mind with mind—by which the arts and sciences are carried forward to increasing usefulness and perfection, and by which our civilization is advanced and rendered practical in elevating and blessing society. To live, at the present time, involves great responsibility; life is active, earnest, real; it has become intensified in a thousand ways, so that the individual owes it to himself and to society, to put forth his best efforts in the great cause of humanity; and this he must do or consent to be distanced in the race of life; for in the on-rushing car of human progress, no standing room is left to idlers—no sleeping room for dreamers.

All who are only tolerably familiar with the modern achievements of medical science, will unhesitatingly concede that this general statement of the progress of events is not less true when applied specifically to the profession which you have chosen. In entering upon its labors and responsibilities, you will do well to emulate the example of the many worthies who have ascended to pre-eminence in our ranks by the awards of labor and of merit.

You have but entered the unbounded and ever-expanding field of responsibility, of usefulness, and of pleasure, whose outskirts you may never reach, but whose development, in a great measure, is in your own hands. *Mark well*, therefore, your beginnings, with each step of your progress in the formation of your mental, moral and professional character, in each of which, be assured that, industry, enlightened reason and purity of life are essential to success.

Possessing and exercising these, the ultimate result of your exertions is no longer problematical. On this foundation you

may rear a superstructure that shall command the admiration of all men for its symmetry, strength and utility, the materials for which are already offered to your hands, in the physical sciences, in the experience and contributions of ages. As if you were passing along some vast apartment filled with the most exquisite productions of genius and art, you have but to reach forth and select from the vastness and variety around you the material suited to your purpose. Your embarrassment will not arise from, where to find, but, what to choose. Even the most gifted, who have enjoyed the highest advantages, are forced to confess that they stand on the shore of the great ocean of knowledge, collecting a few pebbles and shells, while its depths have not been sounded nor its boundaries reached. A single branch of learning offers labor sufficient to occupy the longest life. This is especially true of the science and art of healing.

It is not my purpose to pronounce a panegyric on the science of medicine, but rather turn to topics which, if less inviting, still possess a practical interest for you at the present time.

You visit this city for a common purpose, many of you have left, in the distance, pleasant homes and dear friends, that you may avail yourselves of the advantages which we offer, to prepare for the arduous duties of the physician. I do no injustice to any when I assert that skill in the art of healing is not insured by the advantages within the reach of the individual.

The example is not solitary, of a student, surrounded by all the aids to mental improvement, added to the virtuous habit of a reasonable amount of industry, which, by being injudiciously applied, yield but a record of wasted years, and a mind void of understanding. A medical education is not to be acquired, as the air we breathe, by inspiration, nor does the mind become stored with useful knowledge as the sponge is filled with water. If any have cherished this vain deceit, the ordeal of experience will surely and sadly prove, that

when weighed in the balance such will be found wanting. I would disabuse the mind of the false notion, that nothing more is necessary for you, but to sit passively on those seats, and inhale the atmosphere of the medical college to improve the mind and develop the intellect.

Are you sure that you comprehend the import of the terms, when we speak of the improvement of the mind and intellectual development? or the means by which these may be best attained? Too often the mind is regarded as some great indefinable, incomprehensible entity; requiring for its growth and development only to be surrounded by folios, quartos, and octavos; a greater fallacy could hardly be entertained.

The elementary constituents of all knowledge consist in a three-fold operation, the objective, the subjective, and impersonal. Objective ideas arise in external facts, the subjective in registered impressions, the impersonal issue of pure reason, as, for example, the abstract truths of geometry, and are, therefore, to be attributed to the essential nature of the intellect.* On the faculties of perception, memory and comparison depend our ability to judge of facts and things, and hence the avenues to the understanding are mainly through the special senses.

The necessity to the physician of possessing and preserving the senses intact thus appears evident, for how shall he who is deprived of vision ever appreciate the signs of disease which are presented to the eye alone? He cannot discriminate the different eruptive diseases, or detect the line on the gums which indicates lead poisoning, nor estimate the value of the ever-varying expression of the countenance in disease. It is related of a late eminent surgeon that, so thoroughly had he studied the physiognomy in disease, he required little else to diagnose the affection of his patient. Being called in consultation in an obscure case, he observed the countenance of the patient but for a moment, and immediately enquired, "Where is the abscess?" Subsequent examination revealed a large

* Draper's Physiology.

collection of pus which had been unsuspected. Nor can the deaf man ever avail himself of the nice distinctions of sound, which the march of science has made to reveal the secrets of the breast. Nor can he whose fingers are cased in horn ever cultivate the sense of tact so necessary to the physician and surgeon. In vain would he attempt the acuteness of Thabit Abraham, of whom it is related that, by placing his finger on the artery for an instant, he could tell the seat and nature of the disease, and more wonderful still, whether his patient had dined on beef or mutton, or drank for breakfast coffee from Hodeida or coffee from Mocha. To educate the senses for far less marvelous feats than those told of the Arabian leech, requires a natural talent, for if nature opposes, all else is vain. In the language attributed to Hippocrates, "It is the business of the physician to know, in the first place, things similar and things dissimilar; those connected with things most important, most easily known, and in anywise known; which are to be seen, touched, and heard; which are to be perceived in the sight, and the hearing, and the touch, by olfaction and taste, and by the understanding; which are to be known by all the means we know other things."

Possessing these requisites, the means for cultivating the intellect are various. On account of its general applicability, *reading* holds the first place. It brings to the being whose existence is measured by a brief hour, the accumulated learning of centuries; to him of feeble intellect the achievements of the greatest minds. Here we may sail on the deep sea of accumulated facts and view the silent world of passing events. Here we may select our associates in ancient or modern character. Here we may converse with the ancient seer, philosopher, poet, historian. Thus in books we are to seek patterns in learning, in refinement and taste, in reasoning, and in ethics. By common acceptance reading has come to be used as synonymous with study, so that the student is said to be reading medicine, law or theology.

To study implies the necessity of reading, and many, there-

fore, imagine that all readers are students. Each of you will appreciate the magnitude of the mistake by a little reflection. Have you not, at some time, when endeavoring to fix the attention on the description of the *os sphenoides*, or some other equally interesting and entertaining subject, been annoyed when near the bottom of the page, to find that the mind retained but a dim picture of the outlines of an osseous structure devoid of form or comeliness? The eye has followed the lines mechanically, while the mind has been reveling in scenes far away, with loved ones at home, or possibly the beautiful features, the ruby lip and lustrous eye of one left behind you, has caused the mind thus to play truant.

Need I tell any of you that time thus occupied is worse than thrown away. You can acquire no available knowledge in this manner. It is like reading Euclid's Elements, as the young man did, who had a happy genius of making everything easy to himself; he boasted of reading the whole of Euclid in a small part of one afternoon, and found it a pleasant entertainment. "But did you master all the demonstrations, and solve all the problems as you went?" inquired a gentleman. "I suppose," said the genius, "you mean the A's and B's and C's, and 1's and 2's, and the pictures of scratches and scrawls. Oh, no, I skipped all them." Alas, how many such readers there are in the world!

We are told by certain metaphysicians that impressions once made upon the mind are never effaced, and remarkable instances are cited to confirm the statement, such as the following: An individual in the excitement or delirium of fever may relate facts that in health had long since passed from the memory, or he may speak a language which he had only heard incidentally; and to strengthen belief in the stability of impressions, curious philosophical experiments are described. If upon the polished surface of a piece of metal a wafer be laid, and then breathed upon, and after the moisture has disappeared, the wafer being thrown off, though the most critical inspection does not reveal the slightest trace of any form,

breathe upon it again and a spectral figure of the wafer comes distinctly into view. And this may be repeated again and again, even after the lapse of many months. If a piece of paper on which a key or other object has been lying, be carried into the sunshine and then be instantaneously viewed in the dark, the key having been removed, a fading spectre of the key will be seen, and the figure may be made to reappear afterwards by laying the paper on the surface of a heated metal plate. It is assumed that every shadow that falls upon a wall on any of our crowded thoroughfares, is indelible, and requires only the application of some unknown process to render it cognisable by the sense of vision. Let this be true, and further, concede that these experiments are applicable to mental impressions, still, that student errs greatly who relies on knowledge held by so feeble a tenure as to be developed only in the delirium of fever, or with learning that may be rendered available only under peculiar circumstances. He should possess knowledge that is completely under the control of the will, that may be commanded under every emergency, else he may call for it in the hour of need, as he would

“Call spirits from the vasty deep,”

but it will not come.

There are those who would tell you that when the mind wanders from the subject, to defer every attempt to study for the time, and divert yourselves in any harmless amusement. I advise quite the contrary, when you fail to comprehend the full meaning of any page or paragraph, be it from any cause, commence and read it again, and repeat this if necessary, till you master it. I know the practice is hard and exceedingly annoying, but it can be done. And in this way alone can you subject the faculties of the mind and really cultivate the intellect.

It is my duty, in passing, to admonish you that it is not a matter of indifference what books you read. All books are not equally valuable, and it is seldom at the present day that we can justly estimate the value of a book, as they did when

Rome was in the zenith of her glory, at twice and even three times its weight in gold. And more than one reason might be cited to explain the depreciation in this kind of stock. The following curious statistics, taken from a book published in 1822, explains the want of value in a large proportion of books. "There are 1,000 books published per annum in G. B., on 600 of which there is a commercial loss, on 200 no gain, on 100 a trifling gain, and only on 100 any considerable profit. 750 are forgotten within the year, another 100 in two years, and another 100 in three years, not more than 50 survive seven years, and scarcely 20 are thought of after twenty years. Of the 50,000 books published in the 17th century, not 50 are now in estimation, and of the 80,000 published in the 18th century not more than 300 are considered worth reprinting, and not more than 500 are sought after in 1822. Since the first writings, 1400, B. C., *i. e.*, in thirty-two centuries, only about 500 works of all nations have sustained themselves against the devouring influence of time." I regret to be compelled to say that while the multiplication of books during the last forty years has increased, *pari passu*, with the advance of the Arts and Sciences, the ratio of valuable original books is not greater than in early times. Then how worse than useless to consume your time over a book, the very existence of which will have passed from the memory of men in a decade.

You should select the best book upon the subject you are investigating, and make yourselves perfectly familiar with it. Then you may read as many other works upon the same subject as you have time or inclination to. But you cannot rely upon your own judgment in selecting the first, you must then be guided by others in whose intelligence and judgment you can confide. You will appreciate the importance of this judicious selection of books more and more as you become conversant with the sciences, for you will be surprised to find how few books contain the sum of human knowledge, in any department of learning. I may then commend to you the advice given by the younger Pliny, "To read much but not to read many books."

You will not, I am sure, infer from anything that I have said, that the rapidity with which you pass through a book is any measure of your advancement in knowledge; for though you might finish a volume in a day, you would most likely come to the same conclusion reached by a medical student whom I knew some years since, who relinquished the study of medicine, "because he could read only a hundred pages a day." Though by no means an easy task, the habit of reading thoughtfully and with reflection, is as essential as reading the best works. As well might we expect the body to gain strength by constantly eating, without the power of assimilation, as the mind to be improved without thought; the injunction "to read, mark, learn, and inwardly digest," is peculiarly applicable to the medical student.

Lectures have long been one of the main appliances in teaching, first, as a necessity, when the scarcity of books made it difficult to obtain them, and now, when books abound, the lecture is found to be the most efficient means of instruction. The hour for the lecture commands attendance; the presence of the living teacher, his voice and occasional question ensure attention; the illustrations by diagrams, drawings, models and preparations, the experiments in chemistry, the demonstrations in anatomy, and the vivisections in physiology, as practiced in this college, addressed to the eye, make a lasting impression, so that none can go away without some addition to their stock of learning. The active attention is not less important in the lecture-room than in reading, for the page may be re-read if not comprehended at first, but by inattention, only for a moment, an important fact or principle may be enunciated, and escape the dull ear beyond recovery. Every teacher may with propriety address his class in the language of the Roman patriot, "Hear me for my cause, and be silent that you may hear. Censure me in your wisdom, and awake your senses that you may the better judge." Lectures, demonstrations, and experiments, however, will not supersede entirely the necessity of reading during the term. For it may happen that some topic may not be fully

elaborated in the lecture; or if so, it would not be surprising if, in a large class, an idea should be misapprehended, or not entirely comprehended, by some one. Then when you review the labors of the day, as you should do each night, in case of doubt upon any point, you should immediately turn to your text-book to supply the deficiency. I would not ask you to read the entire subject of all the lectures as they are given each day, but read to correct mistakes and refresh the memory when necessary.

Should the student take notes in the lecture-room? From considerable observation, I am certain that much of the labor devoted to taking notes of lectures is unprofitable; and this is most likely to be the case with students attending their first course. From their want of familiarity with the subject, they cannot readily discriminate between the non essential and the important, but in subsequent courses they should be prepared to appreciate and note down the facts, principles and conclusions announced by the teacher, and this may be of real service. Then during the first course, I believe the student will profit most by listening attentively to the lectures, and in the evening he may take notes of the lectures in the order in which they were given during the day. This course will exercise the memory, and fix instruction in the mind. This exercise of the memory will surprise most of you in its results, it is wonderful how soon you will acquire the ability to remember not only the ideas but also much of the language of the lecture. It is true you may not at first vie with the Emperor Claudius, who retained in memory all of Homer, Sallust, Demosthenes, Avicen, and Aristotle's *Metaphysics*. It is said of Tully and Seneca, that they never heard anything material, but it was imprinted on their memory. You need not fear the regret said to have been expressed by Themistocles, in the following language, "I had rather be taught the art of forgetfulness, for I remember those things I would not, and I can not forget those things I would."

Students who commence their medical studies by a course

of lectures are many times in doubt whether they should attend the entire course or devote special attention to particular branches. For two reasons I think they should attend all the lectures: First, as a rule, those who attempt most accomplish most, and the student who listens to every lecture will, at the conclusion of the course, have a better knowledge of medical science than he who limits himself to a partial course; and second, all recognized Medical Colleges require as a condition for graduation that the candidate shall have attended two full courses of lectures. Many unforeseen circumstances may interfere to prevent the student from attending two subsequent courses, when the partial course might be filled up, and thus he may be disappointed in obtaining the degree when he greatly desires it. And even should nothing prevent the student from attending three courses of lectures, which is by all means desirable when practicable, the course we advise has these additional advantages: By attending three complete courses, a better knowledge of medical science would be almost necessarily acquired than by attending three partial courses, while the expense of tuition would not be increased, for, after attending two complete terms, his right to attend subsequently, free, becomes perpetual.

By the means enumerated, you may become learned in the science of medicine; you may be enabled to talk fluently, and write graphically of disease; and still fall short of being skillful physicians. Something more is necessary to render your knowledge available in the sick room. You must acquire a certain practical tact, to remove the embarrassments that would otherwise meet you at every turn.

The foundation of medical experience is observation of disease, and the requisites of successful observation are minuteness and accuracy. Thus you see the importance of clinical study. In books disease is delineated in boid outlines, which may lead you to believe that all doubt and uncertainty are swept away; but clinical experience will very soon undeceive you, for in practice you will seldom find these

distinctive characteristics strongly pronounced ; the idiosyncrasis of the constitution, the complications of distant organs, through what is called sympathy, so mask the morbid state of the suffering organ, that you will feel no little doubt in determining which set of symptoms are accidental, which are diagnostic. From this difficulty you will be relieved by your professor of clinical medicine, who will make the examination of patients in your presence, and eliminate the false from the true, the important from the accidental symptoms, and thus enable you to see at a glance the seat and nature of the disease.

The first step to successful clinical study is to select a representative case. In this, students not unfrequently make a mistake by selecting some remarkable and unusual case for observation and study, and one it may be, too, not amenable to treatment. Whereas much more profit would be gained by devoting the same time to some case of frequent occurrence. Then note carefully every particular relating to it. Let the symptoms represent the letters ; combine these to form words ; then arrange these words into a sentence, which shall read to your mind the history, the nature and the treatment of the disease. It is necessary to be thus minute and accurate in every case. It should become habitual. And you will at length acquire a tact of reading the case at a glance, as you would the printed page, without fixing the attention especially on the elements—the letters—of which it is made up.

No attainment is more important to the physician than well cultivated habits of observation. To observe is to examine ; it implies intention. We may notice an object because it is cast before us ; but observe it only when we make it a source of our reasoning. We may, therefore, observe by means of the senses, or by the process of induction. The physician must observe minutely, in order to distinguish accurately. He may know the character of the disease, but to distinguish its degree of progress often requires great discriminating powers and careful observation. The careful observer does

not merely notice all the minute points of a case, but reflects upon them, associates them together. He gleans from every circumstance the source of his reasoning. He considers the history of the case—the expressions of the countenance—all the surroundings. Thus as the boy reads the page at a glance, so the educated physician is finally enabled to read the true condition of his patient. One case elaborated thus will be worth more to you than many cases examined cursorily and without order.

Your improvement will depend not more upon the number of cases at your disposal than upon the use you make of them. What you undertake in this department perform as you would anything else, to the best of your ability, minutely, accurately.

In your first attempts thus to study disease, you will, as others have before you, meet with difficulties. Should these embarrassments discourage you, and lead you to conclude that the practice of medicine is at best a conjectural art, I ask you to remember that in the early dawn of society the indications for cure were drawn from sources as insubstantial “as the baseless fabric of a vision,” from dreams, from incantations, charms, and the inexplicable utterances of oracles. Now, practice is based on a knowledge of pathology that draws its interpretations from the science of physiology. How minute, how precise, how connected and definite now. How loose, indefinite, uncertain, how vague and unconnected then.

I anticipate the time when the explanations of physiology shall leave no point in the complex functions of our organisms unexplained; and on this perfected knowledge, the practice of medicine should vie in accuracy with the mathematical sciences of this day. In these achievements is my hope of the utter extinction of quackery from the pale of society. Let us then be thankful for the blessings of the present, and hopeful in the bright promise of the future.

The means which we place before you, during the course,

will be ample to aid you in becoming scientific and skillful physicians. If proof of this were needed, we have but to refer to the long list of those who have preceded you from this institution. And it is with no ordinary feelings of gratification that I am enabled in this public manner to refer to the character and success of more than seven hundred alumni of this College, who have attained the most responsible positions, in both civil and military practice, and have filled them with credit to themselves and honor to their *alma mater*. *Probatum est*, thus do we prove that the facilities and the arrangement of the course which we commend are all that is essential to conduct the student to eminence in the profession. We do not claim to have exclusive control of any great discovery in the art of teaching which promises to relieve the pupil from the personal labor of studious application, or to lead him by new and enchanting paths to the object of his aspirations, for such promises ever prove fallacious; such paths, though flowery, too often prove devious, and lead to disappointment.

In selecting the profession of medicine as the vocation for your life's labor, the question of importance which should be well considered is—Have you chosen well? If to live for yourselves, to amass a fortune, to enjoy luxurious ease, and as you appear in public to be designated by the splendor of your equipage, be your aim and ambition—No. For no other calling would demand so many self-denials; in none would time for pleasure or amusement be less at your disposal; in none would your physical energies be more severely taxed; in none would your moral sensibilities be so painfully exercised. But, if to live for others' good; to relieve the distressed; to administer consolation to the anguish-stricken heart; to answer calls of charity and mercy; if to command the confidence and esteem of the wise and good, give you satisfaction—Yes. For no other business of life offers more frequent opportunities for blessing the suffering ones of our race; in none would you be led more directly to imitate the example of the Great Master who went about doing good.

The greatest achievements of the physician are not always those that are most loudly proclaimed to the public ear. Nor does the conscientious physician derive his highest gratification from listening to the tones of popular applause. His vocation seldom leads him into the noisy strife and busy excitements of life; but his mission is to the chamber of suffering. Look out upon the earth—the landscape is everywhere beautiful with flowers and fruit and grain; but over every mountain and valley, over city and plain and cottage, there rests a cloud—it is the shadow of the wings of Azrael and of his ten thousand inexorable ministers of death, and they are busy at their silent, ceaseless work. Do you not hear the wail of the mourners, breaking like sea-waves along the shore? There is sickness and pain and death everywhere across this beautiful earth. Wherever man flies, there these unrelenting foes follow. In all latitudes and climates, abroad and at home, the weary, panting fugitive still turns and struggles in vain to elude their pursuit, or to shake off their hateful companionship, and in his extremity he will appeal to you, who are to become the conservators of health and life, to ward off the blow of these destroyers, to turn back the march of these mortal foes—and your aid will be invoked to restore to the embrace of despairing friends one just vibrating between life and death. These are the physicians labors; such are his triumphs; and they afford him far more satisfaction a sweeter pleasure, than all the hollow acclamations of the populace.

I should wrong you, however, and misrepresent the profession, did I leave upon your minds the impression that these are the only rewards you are to expect in return for weary years spent in study in your lonely chamber—in the wards of the hospital, and in the mephitic atmosphere of the charnel-house; or for the labors, the sacrifices of personal comfort, and the anxieties inherent in the medical art. While I concede that ours is emphatically a benevolent calling, and that we should lend a willing ear to the call of pity and a helping

hand to those in distress, yet the maxim drawn from holy writ, that "the laborer is worthy of his reward," has a binding force on the recipients of our sympathy and skill. I have just intimated that the medical profession does not open the way to princely fortune; nevertheless, I know of no occupation in life in which a competence may be more surely acquired than by the skillful physician; and never was there a time when the medical student was stimulated by so many incitements to perfect himself in the profession. In civil life the demand for competent physicians is as pressing as it has ever been. In the army and navy the need of educated surgeons is so great that promotions to the highest rank are sometimes reached before the second year. But please remember that the guarantees to success are scientific attainments and skill.

The labor before you is real. I invite you to no holiday pastime. You should see before you, and prepare for the earnest work of a useful life. A proper preparation requires not only the highest scientific attainments, but also the highest principles of honor. The noble men who have contributed most to elevate and advance our chosen profession have been the ornaments of society, as eminent for their virtues as for their scientific attainments and skill. Emulate their virtues, aspire to their attainments.

But I will detain you no longer. In the allotment of labor among your instructors it becomes my pleasant duty to present you our cordial greeting. With emotions, therefore, of pleasure and good will do I welcome you to these halls consecrated to the cultivation of medical science. For myself, Gentlemen, and in behalf of my colleagues, I would assure you that these are no formal, meaningless words. The intimate relations which are to exist between you, as members of the class, and the Faculty, as your instructors, shall bind us in sympathy and interest strong as fraternal ties. We meet those who have favored us before as old friends. Those who occupy these seats for the first time we welcome to the work which, although arduous, is not

one of drudgery. I almost envy the pleasure in young and ardent minds of rising step by step in knowledge, and delighting in the wonders and beauties of the enlarging view, and "beholding the bright countenance of truth in the quiet and still air of delightful studies."

In the work which you have undertaken it needs no words of mine to stimulate you. Let the mission of our profession lead you on to improve the facilities offered you. Let the awfully momentous events now passing in the phenomena of the world be your monitors. You cannot, if you would, be indifferent spectators. While the crimson cloud of war rests over our beloved country—as if the angel was now emptying the vials of wrath—there is an imperative demand for your best efforts in her behalf; and, oh! let us devoutly hope, that the light now breaking in the distant horizon may not disappoint our earnest expectations—that the time is near when the curtain will be rolled up, though red with the best blood of your fathers and brothers, and that the dove with the olive branch may again spread her wings over a united, happy and prosperous people.

REPORT ON ORTHOPEDIC SURGERY,

MADE AT THE ANNUAL MEETING OF THE ILLINOIS STATE MEDICAL SOCIETY, CONVENED IN CHICAGO, MAY 3d, 1864.

By DAVID PRINCE, M. D., Jacksonville, Ill.

(Continued from last month.)

As the various species of congenital Talipes are similar to the corresponding deformities developed subsequently to birth from derangements of innervation, it is fair to infer that, in most cases, a similar derangement of innervation has existed during foetal life. This conjecture is rendered more probable by dissection, which shows that the bones of the tarsus have their proper forms until they are afterward slight-

ly changed in figure by the great pressure to which they are subjected in walking.

This change is much less than a superficial glance would lead one to suppose, there being nowhere a complete dislocation, but only a sliding a little further than the normal length of the ligaments permits.

Figure 4.

The following figure, (Fig. 4,) taken from "Little on the Nature and Treatment of the Deformities of the Human Frame," sufficiently illustrates this point.

The relative importance of paralysis and spasm in the production of this and other deformities will be differently appreciated by different minds standing in opposite positions. The quotations from Bauer, (*), representing the older pathology, and from Barwell, (†), representing the newer, illustrate this point:



Dr. Bauer thinks (p. 12) that contraction of the sural muscles (the muscles ending in the tendo achilles) generally the chief cause of the extension of the foot in *Talipes equinus*. He makes no account of the doubling up of the foot at the medio tarsal articulation so carefully explained by Little and Barwell, and equally with Barwell omits to mention the calcaneo-metatarsal and calcaneo-phalangial muscles as elements in the etiology.

Referring the disease to the shortened muscles, he says: "As a general thing, the contracted muscles have lost all susceptibility of being acted upon by the galvanic current,

(*) *Lecture on Orthopedic Surgery*, by Louis Bauer, M. D. Lindsay & Blackiston: Philadelphia, 1864.

(†) *The Treatment of Club-Foot without the Division of Tendons*, by Mr. Richard Barwell, &c. London: 1863.

yet their powerful extension gives rise to unbearable pain. This fact seems to demonstrate that the muscular structure is in a state of contraction to the extent of its capacity, or the substituted tissue is devoid of all contractile" (expansive) "power. It is certain that innervation has not been entirely lost while pain can be provoked by extension."

In the conditions referred to in this paragraph, the occurrence of pain may perhaps be better explained by bearing in mind that the muscles concerned have for the time acquired the conditions of ligaments.

We know well enough that the ligaments are susceptible of acute pain when over stretched. When a muscle, therefore, which has lost its function from loss, change or paralysis of its muscular substance, is pulled further than its investments of white fibrous tissue will permit, without injury to its habitual physical condition, it is in close analogy with an over stretched ligament, and it should be the seat of pain, the same as if it had originally been a ligament.

The following additional quotation is a further illustration of the spasmodic pathology:

"After the division of the tendons many months may elapse before the galvanic current makes any impression, and in some instances the contractility of the muscles is gone forever."

It the division of tendons is all that is done, the shortening ought to go on still more. It is probably the subsequent movements, effected in the course of the treatment, that restore the susceptibility to the galvanic current.

Dr. Baner finds an advocate for the doctrine of tonic spasm as the cause of *Talipes equinus* in Dr. Joseph Pancoast,* of

* Dr. Joseph Pancoast, of Philadelphia, claims that the elevation of the heel in *Talipes equinus* is owing to the contraction of the soleus while the gastrocnemius remains flaccid, and he accordingly divides the soleus muscle by passing a knife in under the gastrocnemius, instead of the usual easy method of dividing the tendo Achillis.

It is found in any confirmed case of *Talipes equinus* or *T. equino varus*, that the soleus is rigid and incapable of extension, while the gastrocnemius is yielding. Dr. Pancoast is therefore of opinion that the soleus is the author of the mischief.

The fact has another explanation. When a muscle contracts with such

Philadelphia, who thinks that of the three muscles uniting to make the tendo achillis, only the soleus is inordinately contracted, and accordingly he only divides the soleus in the treatment. This is done by passing the bistoury under the gastrocnemius and cutting the soleus just as it becomes tendinous and unites with the gastrocnemius; the edge of the knife being carried towards the bones for this purpose.

It would be wrong, however, to leave the reader with the impression that Dr. Bauer considers spasm the uniform cause of Talipes, and the following quotation from page 19 of his book will do him justice on this subject :

"After mature deliberation, we have come to the conclusion, that the cause in congenital as well as acquired club-foot is pre-eminently defective innervation, and there is truly no reason why derangements in the nervous system should not take place in the foetus as well as in the new-born child. In club-foot, the tibial nerve is the bearer of the difficulty, as must be inferred from the experiments of Bonnet." * *

"All forms of varus are caused by either muscular contraction or motor paralysis, and the individual bones of the foot yield only so much in their respective positions as they are forced to do, by the abnormal muscular traction and the

power that its antagonists cannot extend it, the more powerful muscle soon becomes inextensible and it settles into the function of a ligament, holding firmly the points to which it is attached; the muscular tissue gradually becoming atrophied, and while the size of the muscle diminishes, its hardness increases.

This is the state of the soleus in extreme Talipes equinus. The upper end is attached to the tibia and fibula, and when the calcaneum is elevated as far as its ligaments and bony connexions will permit, the soleus can contract no farther, and if not lengthened by an opposing power it at length becomes hard and yielding. This result is prevented in the gastrocnemius by its attachment to the femur whose movements keep this muscle active and extensible. After the soleus has become rigid from immobility, the gastrocnemius continues to have mobility, and therefore it preserves its extensibility. It is not that it draws less, but that it never acquires a stationary contraction, and therefore never comes into an unyielding condition.

Disproportionate weakness of the flexors of the foot with ankylosis of the knee joint would probably result in equal extreme contraction and consequent rigidity of gastrocnemius and soleus alike.

This explanation entirely destroys the value of Dr. Pancoast's method of dividing the soleus, instead of dividing the tendo Achillis, in permanent elevations of the heel.

superincumbent weight of the body. Being held for some time and acted upon in the preternatural position, they gradually mould themselves accordingly, and become consequently malformed."

In the opposite pathological view, it is claimed by that careful observer, Mr. Richard Barwell, that it is not usually spasm of the stronger, but paralysis of the weaker muscles, which lies at the foundation of deformity, and in support of this view he refers to the common experience that in Talipes the temperature is generally low, while in spasm it is generally high. (*Loco citate* page 19.) "Infants, as is well known, are subject to convulsions, and it is averred that sometimes one or more muscles which have during the attack drawn the limb into malposture, do not recover from the contraction, but continue to keep the limb distorted. * * The state should be one of persistent, unvarying spasm, powerful enough to overcome the antagonistic healthy muscles, and permanent enough to produce lasting change of form. Such condition does not only never come under our notice, but it is, I believe, pathologically impossible. There are no doubt a few cases of peculiar paralysis of the voluntary power over the muscles, while the excito-motory function continues; and in the spasm of the whole set, the strongest organ will of course predominate. Voluntary power is as much used to control as to excite. The paralysis of this power is as much evidenced by violent and uncontrollable spasm as by incapability of subordinate movement. In my experience, such state seldom continues long, unless there be cerebral disease or deficiency, but terminates within a limited period in death or complete recovery, or in simple paralysis in one set and perfect restoration of power in another set of muscles." * * * "Laryngismus stridulus, or false croup, is attributed by some to spasm of certain muscles, while by other authorities, and I believe with more reason, it is considered as paralysis of a different pair. Let it be observed, also, that the squint which may come and go with other symptoms of brain mischief, or may

be a permanent affliction, is certainly to be more rationally regarded as want of action in the outer rectus, which appropriates the whole of one nerve, (the sixth), than as spasm of the inner rectus, whose nerve supplies four other muscles of the eye and appendages. Certain also it is, that some congenital deficiencies of the nervous system, whereof club-foot and club-hand are pretty constant accompaniments, as acephalosis, etc., etc., may, indeed must, produce paralysis; but there is no evident connection between such deformity and spasm." p. 23.

"Altogether, there can be no doubt that paralysis is very much more frequently the cause of club-foot than the opposite condition. * * * The morbid contraction of a muscle, or set of muscles, is hardly ever violent enough or persistent enough to cause a permanent alteration in the shape of the foot while the opposers remain active."

"The muscles, while healthy, are always kept at a degree of tension by tonic contraction, but when any one organ or set of organs has lost its power, the opposers draw the limb in the opposite direction by virtue of that constant and elastic sort of force. For a long time after the commencement of the paralysis there is nothing whatever wrong with the active muscles, but after they have been allowed to become thus short for a certain period they begin to adapt themselves to the shortened condition, and still further contracting as they meet with no resistance, determine at last changes of form in other structures, and so produce permanent deformity."

The clearness with which the points are here made justifies the length of the quotation.

TREATMENT.

It is believed that a careful consideration of the nature and pathology of the different varieties of Talipes, as explained in the preceding pages, will afford the foundation for clear ideas of the indications of treatment, whether preventive or curative. The plans and expedients for meeting these indications are now the earnest study of those interested in this

branch of surgery. No words of mine can be more appropriate than those of Barwell (p. 25):

"It is not to be imagined that when the limb has yielded in the direction of the healthy muscles the sickly ones can recover sufficiently quick or entirely to restore, by their unassisted might, the proper balance of the foot. The weakened muscles want assistance, and the way to render this, in the manner which shall best aid them to overcome the deformity, and to recover from the paralyzed or enfeebled condition, is the problem which surgeons should endeavor to solve."

It is one of the points showing the impossibility of practically and completely separating medicine from surgery, and the different branches of surgery from each other, that in those cases of paralysis, previous to the occurrence of obvious deformity, the disease would be said to be in the department of medicine, though mechanical or surgical means are necessary to prevent the occurrence of deformity, and afterwards, when the deformity places the disease fairly in the department of surgery, the best period for surgical treatment has been allowed to pass by, because the case was in the department of medicine.

The physician must study surgery, and the surgeon must study medicine.

Whoever has examined a case of club-foot by taking hold of it with his hands, may have thought, that if he only had a machine that would take hold of the foot as firmly and yet as tenderly as does the hand, without relinquishing its grasp, and yet pulling yieldingly but persistently, and without tiring out, he could cure any case. The defect of every metallic apparatus is, that while it grasps the foot firmly enough, it pulls unyieldingly, without that distribution of force among all the distorted joints which is effected by the hand. They are most of them intended to act chiefly upon the tibio tarsal joint, while the most careless inspection of any species of Talipes, except one of simple Talipes equinus, will show that the distortion of this joint is a minor element in the case.

That an adequate substitute for the hand is a desideratum not yet furnished to the public, is sufficiently proved by the words of Dr. Bauer (p. 23). "There is no mechanical apparatus, however ingeniously constructed, which could be substituted for the hand in the treatment of Talipes, with any approximate degree of efficiency. In fact, if we could, without interruption, employ the hand as a mechanical agent, we should relieve most obstinate forms of Talipes, which *too frequently* withstand our mechanical appliances." This is an estimate of the importance of some substitute for the hand, with an expression of hopelessness as to its attainment.

On the other hand, Dr. Gross, in his great work on Surgery, vol. II, p. 1011, is well enough satisfied with our present attainments in the art, neither desiring nor expecting any improvements. He says, "It is, perhaps, not going too far to affirm that these topics (club-foot, etc.,) are as well understood now as they ever will be."

Dr. Bauer again places this estimate upon our present attainments (p. 28). "They (mechanical appliances) possess no curative virtues, but retain the foot in the position in which tenotomy and the acting hand left it."

It is believed that in the course of these pages a process will be explained which is a pretty adequate substitute for the hand.

The earlier experimenters in this art seem to have relied chiefly upon wood and iron as substitutes for the hand, but so generally did they occasion ulcerations of the prominent parts that the art made no important progress until the introduction of subcutaneous section of the tendons by Stromeyer, in 1831. In a large proportion of the cases of Talipes, including all the species *equinus*, the division of the tendon Achilles permits an immediate improvement in the position of the foot, and facilitates the further reduction of the distortion of the joints of the tarsus. This tendon had been cut at various times before Stromeyer, by making an open wound, but this procedure could never be generally adopted. Dr. H. G. Davis, in

his report on Deformities, in the Transactions of the National Medical Association for 1863, quotes Isaac Mincius as having divided it in 1685; Thellenius, in 1784; Sartorius, in 1806; Michaelis, in 1809; Delpech, in 1816; but none of these men could think of so simple an expedient as passing in a small knife at a point distant from the tendon, and so dividing it that the incision through the skin should heal without suppuration. It is commonly recommended, to puncture the skin, with a sharp pointed bistoury, upon the inner or tibial side of the tendon, opposite the internal malleolus, or higher, if the heel is very much elevated, and having withdrawn this to pass a probe pointed bistoury between the tendon and the tibia, and while the tendon is made very tense by the hand of an assistant holding the foot, to cut the tendon by pressing the fingers upon it, thus crowding it upon the knife. If any shreds remain undivided the fact is known by the failure of the heel to come down, and the bistoury is again partially withdrawn and passed under them, when they are divided by the same process by which the main portion of the tendon was cut. The reason for passing the knife on the tibial side of the tendon is the less danger of wounding, by the point of the knife, the posterior tibial artery, which lies upon the inner side, and the same reason exists for cutting toward the skin instead of passing the knife between the tendon and the skin and cutting toward the bone. A small piece of plaster laid over the minute incision is all the dressing that is necessary.

It is common to describe instruments peculiarly constructed for this purpose, but they are unnecessary. Many of the instruments made for tenotomy are too delicate.

Apparatus for extension is immediately applied by some, but in order to secure a union of the divided ends of the tendons by organizing exudations it may be more safe to postpone this for a few days, and then to make the extension very gradually. It is not known that the tendo Achilles, divided subcutaneously in early life in the human subject, has ever failed to unite, but in an experiment which I made some years ago,

upon a dog, the divided tendo Achilles united only by shreds of its investing sheath, which indeed may never have been divided.

It is suspected that the uniform success of division of the tendo Achilles, as introduced by Stromeyer, gave an unmerited estimate of the importance and utility of the division of tendons and muscles in general. A reaction in this estimate has led many to discontinue the practice of dividing tendons, except in rare cases of remarkable obstinacy, while others seem still to believe in tenotomy with undiminished zeal.

Among the former is Mr. Richard Barwell, of London, who says in the preface to his little book, "I studie these maladies from the orthopedic point of view, and while tenotomy was almost a novelty in England, was so charmed with the easy change of form, which after such an operation could be produced in most distortions, that I became an almost enthusiastic admirer of the procedure. After, however, following up carefully a large number of these cases, I was pained to find in how many of them the deformity more or less returned, in how many a different, an opposite distortion supervened; while power over the limb was actually injured or destroyed in so large a majority of instances that its retention appeared absolutely exceptional."

This language sounds very much like that of one temporarily thrown out of balance by an extreme reaction in opinion, instead of stopping at the safe middle point.

The latest published opinions on the other side, are those of Dr. Baner, (p. 34 of the little book already referred to,) who says, "The active forms of valgus necessitate the division of the contracted peroneus muscles, or of the whole group of the abductors as the case may be. This is at least indispensable in inflammation of the tibio tarsal articulation. *

* * It is difficult to steady the articulation with mechanical appliances in paralysis of the entire motor apparatus of the foot, but it is completely impossible to do so when the malposition of the latter is maintained by retraction of the pero-

nei muscles. We at least, have never succeeded by any of the devised mechanical auxiliaries. Meanwhile the deformity increases and gradually compromises the bones of the tarsus. Between the two evils we have to choose, and we think that division of the contracted tendons is the lesser."

Now it is the division of these tendons which, like the peronei, run in long ligamentous grooves along the tarsus, which is most objected to. It is claimed that the function of these muscles is often permanently suspended by division, either by not uniting, or by adhering to their sheaths, so as no longer to be able to act upon the bones into which they are normally inserted.

Mr. Wm. Adams, of London, has been investigating this subject during the last few years, and has dissected twelve feet in which tenotomy had been performed. The results of these investigations have been published under the title, "On the Reparative Process in Human Tendons." Mr. Barwell has reduced these results to tabular form, which is here quoted.

Table from "Barwell on Club-Foot," Edit. 1863—Analyzed from "Adams on the Reparative Process in Human Tendons."

No. Cases.	Tendons Divided.	Results Observed.	Time lived after operation.
I.	Tendon Achilles, Tibialis Anticus,	Non-union of Tibialis Anticus,	4 days.
II.	Tendon Achilles, Tibialis Anticus, Tibialis Posticus Flexor long. dig.	Non-union of Tibialis Anticus. Non-union of Flexor long. digit.	11 days.
III.	left. Tendon Achilles, Tibialis Posticus	Tibialis Posticus adherent to the bone.....	23 days.
IV.	right. Tendon Achilles, Tibialis Posticus Tibialis Anticus, Tibialis Posticus,	Tibialis Posticus was supposed to be but was not, divided. Union to all surrounding parts.	30 days.
V.	Flexor long. dig.	Non-union, held together by shreds of sheath to which other parts also adhered.....	18 days.
VI.	Tendon Achilles, Tibialis Anticus, Tibialis Posticus Flexor long. dig.	Tibialis Posticus and Flexor longus digitorum adhered together and to the bone.....	6 weeks.
VII.	Tendon Achilles, Tibialis Anticus, Tibialis Posticus Flexor long. dig.	Tibialis Anticus and Flexor long. dig. adhered together and to the bone; ends of tibialis ant. hung together by shreds of sheath.	6 weeks.
In the 5 next cases in Mr. Adams' work the Tendon Achilles only was divided.			
XII.	(Tendon Achilles.) (Tibialis Posticus) (Flexor long. dig.)	Non union of Tibialis Anticus. Neither retraction nor extension of the Flexor longus digiti.	Several yrs

Analysis of the Preceding Table.

Division of the Tendo Achilles, 12 cases; united in 12.

Division of the Tibialis Anticus, 4 cases; united in 1; not united in 3; adhered to surrounding parts, equally destroying the function of the muscle, in 1.

Division of the Tibialis Posticus, 7 cases; not divided in 1; united in 3; not united in 3; adherent to bone or surrounding parts, suspending the function of the muscle, in 3; that is, in all the cases of non-union.

Division of the Flexor Longus Digitorum, 5 cases; united in 1; not united in 4; adherent to surrounding parts, (among the cases classed non-union,) 2.

From this analysis we may well hesitate before dividing any tendon about the foot, except the Tendo Achilles. If the result in these cases is of any value, the division of these tendons should only be practiced in instances in which, from permanent loss or paralysis of the opposing muscles, a permanent loss of muscular contraction is desirable in the muscles whose tendons are to be divided.

The following interesting observations and experiments by Dr. L. T. Hewins, of Loda, Iroquois co., Ill., show the influence of young age upon the activity of cicatrix formation to connect the divided ends of tendons, or to pull them together.

Upon a dog four years old, he failed. Upon dogs ten days, and three months old, he succeeded, after removing portions of tendons. He also succeeded perfectly upon a rabbit. He observed the reproduction of tendon, or substitute for it, in the extensor digitorum manus, in one man 35 years old, three-fourths of an inch having sloughed off, and in another man, aged 38, half an inch having been lost by sloughing.

These latter cases were successes under difficulties, the wounds being open and granulating, and presenting the conditions and favoring agglutination of the tendons to the bones and other surrounding parts. The influence of motion in elongating adhesions and reducing shapeless masses of newly organized material to the shape and function of tendon, wheth-

er permanent or temporary, by its gradual shortening and disappearance, is well illustrated.

LODA, ILLS., Sept. 12, 1862.

Divided the tendon of a healthy dog, about four years old, corresponding to the Tendo Achillis in man. Removed a section of the tendon so as to be sure if I could get reproduction of tendon in an animal of that age. Dressed the limb with splints and rollers to prevent motion.

Sept. 20th.—Removed dressing from the limb. External wound healing kindly; no evidence of growth of tendon.

Oct. 2d.—Examined limb; no evidence of reproduction; fascia both superficial and deep-seated, are quite adherent to the divided ends of the tendon.

Oct. 15th.—Removed dressing from limb; no elongation of tendon; fascia and tendon uniting; fascia more firm than at former examination, and evidently thickening.

Dec. 1st.—Examined the divided tendon; find no evidence of growth in length of tendon; fascia have united with divided ends of the tendon, to form a common link between those parts. The dog walks with a hobbling gait.

Sept. 12th, 1863.—One year after the division of the tendon in the above case, there is no evidence of reproduction of tendon; the divided ends may be felt through the integument and the fascia is very firm. Dog has a hobbling gait and is permanently lame.

Sept. 13th.—Divided the tendon in a dog about ten days old, corresponding to the one divided in the former case, and a portion of the tendon removed. Dressed the limb to keep at rest; dog seemed entirely healthy.

Sept. 20th.—Dressed the limb. There is evident prolongation of tendon.

Oct. 2d.—Dressed the leg. Tendon manifestly extending, so as nearly to unite.

Oct. 12th.—Tendon not yet united, kept on dressing.

Oct. 23d.—Tendon not completely united, but the divided ends approaching each other.

Nov. 15th.—Examined the leg; found the tendon entirely united, having a good degree of firmness; dog walks without halting.

Dec. 25th.—Divided tendon seems as strong as undivided one of the other leg; dog walks without limping.

Feb. 2d, 1864.—Divided tendon of a dog three months old. Dressed, after removing a portion of the tendon, so as to keep from motion.

Feb. 10th.—Dressed the leg; wound in integument healing kindly; evident formation of new tendon.

Feb. 20th.—Dressed the leg; tendon still growing in length.

March 2d.—Dressed the leg; found divided ends of tendon approaching each other.

April 1st.—Tendon fully formed and pretty firmly united; wound has healed kindly. Dog walks well.

March 3d.—Divided the tendon in the leg of a rabbit, and dressed to keep motionless.

March 10th.—Dressed the wound; looks well, tendonous organization evidently going on well.

March 20th.—Tendon elongated; union hopeful.

March 30th.—Tendon fully formed, but soft.

April 15th.—Tendon fully formed and more firm. Animal walks well. This animal seemed very healthy.

Nov. 4th, 1862.—D. S., (a German by birth,) a healthy man, aged 35 years, had the extensor tendon of the middle finger on the left hand divided by a corn-knife. Wound was neglected about 14 days, by which time the tendon had ulcerated and about three-fourths of an inch had sloughed out, when he applied to me for treatment. Dressed the hand and kept the finger extended and at rest; attempted to subdue inflammation in the hand, which was at the time extensive, as soon as possible, and to arrest ulceration of tendon and its necessary distinction. After twelve weeks new tendon had been produced to supply the waste made by previous ulceration, and the finger restored to its normal action.

April 15th, 1864.—Mr. J. D., a man aged 38 years, had his

index finger on left hand seriously injured by contused wound from a hand-car. Ten days afterward he applied to me for treatment. I found about half an inch of the extensor tendon of the finger sloughed off; have dressed and watched the finger carefully to this date, June 2d, and by this time a new tendon has formed, but is soft. I think we shall have a good finger.

L. T. H.

(*To be continued.*)

CLINICAL LECTURES ON DISEASES OF THE EYE.

By E. L. HOLMES, M. D., of Chicago,

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IRITIS.

Gentlemen :—From the number of cases of inflammation of the iris, which I have been able to bring before you during the present course, you may judge of the relative frequency of the disease. You will probably, in practice, meet one case of Iritis in every fifteen cases of diseases of the eye. If not on account of its frequency, certainly on account of the importance of the structures implicated, Iritis merits your careful study.

From whatever causes produced, the inflammatory action seems to commence in the spindle and star-shaped cells of the iris, but soon extends to the areolar tissue, the cells of the muscles and of the epithelium.

The swelling, redness, pain and sense of heat, experienced in the smallest pimple in the skin are a type of the symptoms which present themselves in iritis. The great vascularity, the extensive supply of nerves and the delicacy of structure explain the differences in the phenomena observed in iritis.

The objective symptoms of this disease are usually marked and readily detected, especially when the habit has been formed of examining the color and general aspect of the iris,

the shape and movability of the pupil in different individuals in health. One, who has not formed this habit, will very often fail in his diagnosis. An error in diagnosis leads to an error in treatment, which is possibly more liable to do harm in iritis than in most other diseases. The most common mistake seems to be in confounding the vascularity in the early stages of iritis with that of conjunctivitis. Caustic astringents, so useful in the latter disease, are very dangerous in iritis.

One of the first symptoms of iritis is a sluggishness in the movements of the pupil when exposed to sudden changes of light and shade. This inactivity of the pupil is caused by the products of inflammation, pressing upon the nerves and muscles of the iris, impeding their action. Hence the pupil is fixed.

The fact which I have already mentioned, that the pupil is contracted by sleep and by irritation of the branches which the fifth pair of nerves send to the iris, will explain why the pupil is also contracted in iritis. The inflammatory action produces irritation of the nerves; this, with sleep, contracts the pupil. Consequently, as the disease progresses, the pupil becomes more and more diminished in size.

A discoloration of the iris with irregularities upon its surface, and especially upon its pupillary edge, is quite a constant symptom. The discoloration is produced by the extravasation from the cells and vessels into the substance of the iris. The formation of lymph is especially active at the pupillary edge of the iris, tending to unite the iris with the capsule of the lens. If the pupil is suffered to remain contracted it is liable to be completely filled with lymph, which not only unites the opposite edges of the pupil with each other, but also with the lens. In this case vision is almost totally destroyed. If the pupil is kept dilated without arresting the disease, the attachment between the lens and iris may take place, although the pupil itself and the central portion of the capsule of the lens may remain perfectly transparent.

Pain and redness, although perhaps always present, are symptoms exceedingly variable in degree. The pain may be but a slight uneasiness in or about the eye, or it may be agonizing beyond description. The redness is of a peculiar pink tint in the earlier stages of the disease, and is confined to a zone of fine radiating vessels of the subconjunctival membrane around the cornea. Subsequently the conjunctiva itself may become congested and cedematous, when the characteristic color of iritis may disappear.

Obscuration of vision, produced by the products of inflammation, floating in the aqueous humor, is a marked subjective symptom. This cloudiness of the aqueous humor can be readily detected in ordinary cases. It requires, however, some experience in observation to distinguish it from certain cloudy appearances in the cornea when inflamed.

Pus is sometimes formed by iritis and thrown into the anterior chamber. Less frequently, perhaps, the rupture of a minute blood-vessel of the iris causes the presence of blood in the aqueous humor.

The causes of iritis are principally mechanical injuries, whether from accident or surgical operations, a syphilitic, scrofulous or rheumatic diathesis. With these predisposing causes, sudden changes of temperature, strong light, imprudent use of the eyes may become the active cause. Measles, typhoid fever and the absorption of pus into the circulation have been in rarer instances the apparent cause of the disease.

The termination of iritis is usually as follows: If the treatment has been skillful, all the tissues of the eye may escape uninjured. Even pus and blood may be absorbed from the anterior chamber and the lymph deposited upon the edges of the pupil (iris) and capsule of the lens may disappear.

The disease may run quite a rapid course, extending to the choroid and other tissues, and soon destroy the usefulness of the eye. You should remember that very often in proportion to the extent of the adhesions between the iris and lens will be the danger of relapse and ultimate loss of vision. Re-

peated attacks of iritis, after adhesions have been formed, seem inevitably to lead to choroiditis and loss of vision.

The substance of the iris may be filled to such an extent with the the products of inflammation, and the nutrition of the muscles and nerves so impeded as to destroy the true structure of the iris in the same way, as we have already seen, that the conjunctiva may become a thin, parchment-like membrane in *zeropythmia*.

The course of few diseases, we believe, is so favorably modified by treatment as that of iritis. Pneumonia, dysentery and other similar diseases may recover without treatment and the organs implicated may be as healthy as before. I believe that inflammation of the iris, uninfluenced by treatment, rarely leaves vision as perfect as before the attack.

Omitting all theories and explanations, I shall allude but to a few of the most practical and important rules in the treatment of iritis. The following, I believe, are the three points of greatest importance: to keep the pupil dilated from the commencement of the attack by the frequent instillation of a strong solution of atropine; to confine the patient in a quiet room, with suitable temperature and little light; to allay pain by the use of anodynes. By a careful attention to these three points, you will find little difficulty in relieving uncomplicated cases of iritis. I usually employ a solution of the neutral sulphate of atropine, four grains to the ounce of water. A couple drops of this should be introduced between the lids every hour, more or less frequently according to the severity of the case. As an anodyne you may use morphine, *cannabis indica*, or *codeia*. The two latter are valuable agents in cases where morphine produces unpleasant effects. The doses should be sufficiently large to subdue the pain. Hot fomentations on the forehead and temple are of some assistance in reducing pain. *Veratrum viride*, aconite and gelsemine, if they do not tend to cure the disease, certainly palliate the symptoms, even where there is not much general fever. The diet should be light, and mild cathartics administered as re-

quired. Suitable constitutional treatment should, of course, be adopted in cases of complication with rheumatism, syphilis or scrofula.

I have never treated a case of iritis without prescribing mercury. You are aware that old authorities consider this remedy as all-important in iritis. Within the past few years, however, several oculists, especially Dr. H. W. Williams, of Boston, have shown that iritis can be successfully treated without mercury. Although this modification in the treatment is gaining favor, I think comparatively few distinguished oculists of different countries have discarded the use of this remedy. It should only be given in such doses as scarcely to effect the gums, care being taken to adapt the quantity to the susceptibility of the patient to its influence.

I have succeeded so well in treating iritis upon the plan above described, that I have not found reason to change it, even in omitting mercury. I am, however, more and more inclined to make the trial. The paper by Dr. Williams, and other shorter articles upon the subject by different writers, in medical journals, are worthy your consideration.

In cases of extensive adhesions between the iris and lens, with tendency to relapse, the most successful treatment is the removal of a portion of the iris, as in the operation for artificial pupil, which will be described in the following lecture.

The monograph of Graefe on chronic iritis, and the chapters on iritis in the works of Stellwag and Arlt, in addition to those in our best English text books should be carefully studied.

SELECTED.

COMPLICATED CASE OF LABOR.

PROLAPSUS OF THE FUNIS, ETC.

Dr. Alex. R. Simpson communicated to the Edinburgh Obstetrical Society, 9th of December, 1863, the following case, which presents some features of interest in respect, 1st, of the diagnosis of pregnancy; 2d, of the duration of pregnancy; 3d, of the painlessness of parturition; 4th, of prolapse of the umbilical cord, and its remedy by the postural treatment; 5th, of the employment of the forceps; and, 6th, of the management of the third stage of labor.

"1st, *Diagnosis of Pregnancy*.—Mrs. A. B. was in full process of parturition when she arrived at the Infirmary, on the 29th of November; but she had left home by the advice of her medical attendant, who saw her the night before, and told her she was laboring under a dropsical ovarian tumor. And yet nothing in obstetrics is more easy, when on our guard, than to distinguish between a gravid uterus at the full term, and a dropsical tumor of the ovary. There may be a common sensation of fluctuation, a common smoothness of surface, even a common situation in the abdominal cavity, but it needs only the application of the stethoscope to detect the distinct placental and cardiac sounds, or the touch of the finger, per vaginam, to recognize the hypertrophied uterus, with the moving body in the interior. In the present instance the mistake was made by a very able and accomplished practitioner, simply from his omitting duly to examine the case. He found the woman seated on a chair when he was summoned to see her, and, having already made up his mind that she could not be pregnant, he contented himself with putting his hand over the abdomen, and feeling the tumor through her dress. He then told her that she should go off to Edinburgh and have something done for it. And when she asked him for a line to secure her admission into the Infirmary, he added, that they were all interested in this kind of tumor at present, and that no recommendation was needed, for her case would commend

itself. Now, the prejudice in his mind may have arisen from the circumstance, that when the patient, who is forty-four years of age, and the mother of seven children, had miscarried at the fifth month, two years ago, he had been led to form the opinion, which he then expressed to her, that she could never again become pregnant. But he was further led astray by the circumstance that more than ten months had elapsed since the date of her last menstruation; and it seems not to have occurred to him that the case might be, as it was, a case of

"2d, *Protracted Gestation*.—The patient menstruated in the beginning of January; but the period lasted only two days, instead of four as usual, having ceased on the 3d or 4th of the month. It was not till she felt "stirrage" in May, however, that she imagined herself to be pregnant, and began to think of making preparations for her confinement. She expected herself to have been delivered about the close of September or beginning of October, but it was not, as I have stated, till the end of November that the event took place. Supposing her not to have become impregnated till the period succeeding that at which the catamenia so abruptly ceased, she could not have carried the child less than 300 days; and if, as in the highest degree probable, both from the shortened menstruation and the date of quickening, she became impregnated at the period in January, we have a term of utero-gestation extending in this case to 329 days. The condition of the child at birth, and especially of its head, indicated a corresponding degree of development. It measured 21 inches in length, and weighed over 10½ lbs. The head measured 14½ inches in circumference; the anterior fontanelle was small, and the membrane firm; and the posterior fontanelle was so far obliterated, that the corner of the occipital could not be depressed below the parietal bones.

"3d, *Painless Parturition*.—Our patient having had all idea of pregnancy banished from her mind, set out from home, and reached the Infirmary without experiencing any uneasiness; and it was only while she was sitting in the nurse's room explaining the cause of her arrival, that a sudden gush of water from the vagina restored her to the conviction that she was, after all, to give birth to a child. The uterine contractions were going on, although she was unconscious of any pain; and they must have been going on for some time, for when the clinical clerk, Dr. Watson, saw her, almost immediately after the rupture of the membranes, he found the os uteri already

fully dilated, and the head exposed. The woman had given birth to all her former children easily enough; but with all of them, she had, like other women, been conscious of the pain usually attendant on the uterine contractions. On this occasion, however, the first stage of labor was completed not only without any suffering having been experienced on her part, but also without her even being conscious that labor was in any degree in progress. And throughout the whole progress of the labor, the uterine contractions seemed not to be accompanied with the slightest pain; for before the head entered into the pelvic brim, the patient was unconscious of any suffering, when the hand over the abdomen could feel the uterus distinctly contracting; and afterwards, when the head was passing through the pelvic canal, there was no kind of pain, only a feeling of fullness resulting from the pressure of the head on the soft parts of the pelvis. I had never before met with a case of absolutely painless parturition; but Dr. Von Ritgen, the venerable professor of midwifery, at Gießen, told me some years ago, that in the course of his practice he had seen seventeen women, who passed through the parturient process without any pain; and from his observation of these cases he had been led to form the conclusion that the act of parturition is normally and physiologically a painless one, which only becomes painful and pathological in consequence of the abnormal and artificial mode of life led by the great mass of womankind.

4th, Prolapsus Funis, and its Replacement by the Postural Treatment.—I first saw the woman on going to visit, for my uncle, the patients in his ward in the Infirmary, at one o'clock, P. M., about a quarter of an hour after she had been seen by Dr. Watson. On making an examination, I found that a complication had occurred, from the falling down of a loop of the umbilical cord, of four or five inches in length, opposite the left sacroiliac synchondrosis. The umbilical vessels were pulsating vigorously, and the prolapsus must have taken place very shortly before, as there was none to be felt when Dr. Watson made the examination.

"We can easily understand the occurrence of prolapsus of the funis in cases of preternatural presentations and mal presentations of the head, or where, from contraction of the pelvic brim, the presenting part of the child is prevented from adapting itself closely to the lower segment of the uterus; but the conditions of its descent in cases of normal head-presentation have not yet been accurately ascertained.

"In the present instance, we have a concurrence of three of the conditions that have been more especially insisted on as favoring the occurrence of this accident. *First*, the patient was a multipara, with a very relaxed and dilatable cervix uteri and, perhaps, there was a want of tenacity in this part of the organ, associated in her with the absence of sensation during uterine action. *Secondly*, the placenta was placed very low down on the uterine wall, for the opening in the membranes was bounded in part by the placental margin; while, *thirdly*, the nuchal cord was inserted into the placenta within an inch of that part of its border;—two conditions, the importance of which have come to be abundantly acknowledged since the younger Naegele specially called attention to them, in an essay on the subject.* I might add, that the cord was of more than average length, and measured 21 inches, for this too has been noted in connection with prolapsus of the cord; but what exact share is to be attributed to each of these elements in the production of the complication, it would be difficult to decide, for it is a kind of case in which the mind of the accoucheur is for the time less taken up with the cause than with the cure; he is more anxious to avert the consequences of the accident, than to determine how it was produced.

"And here, let me observe, that the great variety of expedients that have been adopted for the remedy of this complication, and the vast variety of instruments that have been contrived for the reposition of the descended cord, are a sufficient indication of the imperfection and unsatisfactoriness of each and all of them. And when we look to the recorded results of these various forms of treatment, and find that, even in the best hands, little more than two thirds of the children are saved, while the average mortality in the general mass involves more than half, we are prepared to welcome a suggestion so simple and safe, and to adopt a measure so satisfactory as that described in 1858, by Dr. T. G. Thomas, of New York, under the designation of 'The Postural Treatment.' * * * Although six years have already elapsed since Dr. Thomas read his essay before the Academy of Medicine, the proposal is not widely enough known, or, at least, the results of the practice have not yet been recorded in sufficient abundance to allow us to make a statistical comparison of it with the multifarious methods of treatment which it promises to replace. But I am well assured that when it shall come to be adopted as

* H. Fr. Naegele, *Commentatio de causâ quâ tam prolapsum tunc cili umbilicalis in partu, non rarâ illâ quidem, sed minus notâ*, Heideb. 1839.

the common method of treating cases of prolapse of the cord, when interference is required, the high mortality of this complication will be found to be very materially diminished.

"In the special case before us the result was in every respect most gratifying. Having placed the patient on her elbows and knees, I passed the fingers of the right hand into the vagina, and carrying down the displaced loop of cord into the os uteri, I could feel it slip away past the presenting head into the dependent uterine cavity. Friction was then applied to the uterus to increase the contractions; and these having been still further stimulated by the administration of a full dose of ergot, and the head having fairly entered into the pelvic brim, the patient was made to resume the ordinary obstetric position in about a quarter of an hour from the commencement of the operation.

"5th, *Application of the Forceps.*—The uterus continued to contract regularly and steadily, though painlessly, but the advance of the head was so very slow, in consequence of its large size and extreme ossification, that after the lapse of an hour and a half, or two hours, I deemed it right to act on the principle, which has ever received the hearty sanction and support of this society, that we ought to interfere to avert the evils of delay, rather than to wait till nature has done her utmost, and left the patient prostrate, and, perhaps, after all, undelivered. The woman was accordingly brought under the influence of chloroform, when Dr. Watson applied the forceps and speedily effected her delivery. With the birth of the child in this manner, all peculiarity in the history of the case terminates. But I may still be permitted to add a few sentences as to the way in which we conducted,

"6th, *The Management of the Third Stage of Labor.*—With the left hand over the abdomen, I followed down the contracting uterus, as the body of the child was being expelled from its cavity; and then grasping the uterus, at first gently, then with more force, I compressed it until, within five or six minutes, the placenta, with the membranes, was driven into the vaginal orifice, and removed. At first sight it will be averred that there is nothing new in this kind of procedure; and it is not as a novelty in practice that I mention it now. Yet I apprehend that though a few practitioners in the midst of us are in the habit of following out this plan in most of their cases, the ordinary practice of the profession in Britain materially differs from it, and consists, as we find laid down in all our text-books, of waiting ten or fifteen minutes till the

return of uterine contractions may have detached and expelled the placenta, then examining to discover the position of the afterbirth, and removing it; and when it does not come away at once, making gentle traction on the cord, while the uterus is stimulated to more energetic action by occasional friction, but not with such a forcible degree of compression as would suffice to separate and squeeze out the contents. Or if, in the practice of some obstetricians, the external manipulation of the uterus is insisted on as *the chief* element for successful completion of the third stage, yet even with them the internal interference with the cord and placenta is not entirely laid aside."—*Edinburgh Med. Journ.*, April, 1864.

EDITORIAL AND MISCELLANEOUS

Rush Medical College.—The twenty-second course of instruction in this Institution was commenced on the 5th of October. A very pleasant audience of ladies and gentlemen filled, to its utmost capacity, the lower lecture-room of the College building, on the evening of that day, to listen to the Introductory Address, by Prof. Miller. The numerous Alumni of the school, and its many staunch friends, will be glad to know that the current session promises to be more successful than any that has preceded it. The present attendance numbers between two and three hundred, and in intelligence and attainments, the class of students will compare favorably with any that we ever looked upon. The faculty are perfectly united and harmonious in their views as to the best plan for instructing medical students, and strengthened and encouraged by the approval their former course has received from the profession of the Northwest, they feel determined to put forth renewed efforts to sustain the reputation the school has acquired, and to give to the young men who annually avail themselves of its means of instruction, ample opportunities to gain a full knowledge of those fundamental principles that are essential in the education of a competent physician.

Suspension of Medical Journals.—The Rebellion and the financial derangements in the country, consequent thereupon, have operated most disastrously upon the Medical periodicals of the land. Not a few, indeed, a majority of the Medical journals published in 1860, have been compelled to suspend. One of the latest that has discontinued, is the *Medical Times* of New York city. This we regret, for the vacuum thus made in our exchange list, we fear, will remain unfilled. And we can but think that the profession of the Atlantic States, in allowing this journal to suspend, in consequence of inadequate pecuniary support, have done themselves a real injury. The difficulties of Medical journalism at all times, are not inconsiderable, and at times they accumulate so as to produce a stasis in the *circulation*. When the *Times* discontinues, and the *Surgical Reporter* must defer its issue for weeks, and the *Boston Journal* acknowledges embarrassments in its way, we can but feel thankful that, through the promptness of our subscribers, the *Medical Journal* of Chicago feels none of these annoyances, that have visited the Medical periodicals of the older Eastern cities. With two exceptions, we believe, the *Chicago Medical Journal* is the oldest Medical periodical in the United States, it having been published twenty-one years; and never was its list of paying subscribers so large as now.

The New Surgeon-General of the United States Army.—Dr. Joseph K. Barnes, who has been acting Surgeon-General for some months, has been appointed Surgeon General of the United States Army, vice Dr. Wm. A. Hammond.

Officers of the American Dental Association.—President, Dr. J. H. McQuillen of Philadelphia; Vice Presidents, Drs. C. P. Fitch of New York, H. Benedict of Detroit; Corresponding Secretary, Dr. George W. Ellis of Philadelphia; Recording Secretary, Dr. J. Taft of Cincinnati; Treasurer, J. J. Weatherby of Boston.

Surgeons in Captivity.--The following is from the Richmond *Despatch* of recent date:

"The following officers, captured at Tupelo, Miss., some time since, were brought to this city yesterday, and committed to Libby Prison, Surgeon J. L. F. Garrison, 50th Ind., Asst. Surg. H. C. Cooper, 178th New York, Asst. Surg. John Little, 24th Missouri, and acting Asst. Surg. R. P. Kendle, U. S. A."

A New Ambulance.--Asst. Surg. Howard, U. S. A., has prepared a model of a new ambulance, combining many and important advantages and conveniences not possessed by any form of ambulance hitherto in use, yet having the merit of extreme simplicity, and not liable to get out of repair.

A Brevet Worthily Bestowed.--It is with pleasure that we announce that Surg. Richard S. Satterlee, Medical Purveyor, U. S. A., for the past ten years located in the city of New York, who ranked as Major, has, after receiving the brevet of Lient. Colonel and Colonel, finally received that of Brigadier General, dating from September 2d. These honors, which are very worthily bestowed, have, as officially stated, been conferred "for diligent care and attention in procuring proper army supplies, as Medical Purveyor, and for economy and fidelity in the disbursement of large sums of money."

General Satterlee entered the army in 1822, and has been in the service ever since. Since the Rebellion broke out in 1861, his duties have been arduous and responsible.

The General comes from good stock, his father being among the first to volunteer in the Revolution; he was subsequently Captain in the first Regiment, Regular Infantry, of the United States (Hazan's Legion); was in many of the trying ordeals of those days, and died of a wound received at the battle of Brandywine.

Honors of this character are so sparingly conferred on our

profession, that this evidence of appreciation will be received with gratitude by the Medical Corps of the Army, than whom there is no more faithful and able corps in the service of the Government.

There are others of the older army surgeons who, by their long, arduous and faithful labors, have well-earned increased rank, and we trust it will be bestowed.

At a late meeting of the Cincinnati Academy of Medicine, Dr. Blackman presented an extraordinary specimen of osteosarcoma, or enchondromatous tumor of the femur, measuring four feet in circumference, and weighing sixty-four pounds.

Jonathan Knight, M. D., late Professor of Surgery in the Medical Department of Yale College, died at New Haven, Conn., August 25th, in the seventy-fifth year of his age.

PROCEEDINGS OF THE GALEN MEDICAL SOCIETY, OF STARK CO., IND.

This Society was organized July 9th, 1864, and has held two meetings since its organization. At the last meeting, which was held Oct. 1st, 1864, the Secretary was instructed to furnish a synopsis of the proceedings of that and the previous meetings to the *Chicago Medical Journal* for publication.

The Society was organized at Knox, Ind., July 9th, 1864. Dr. L. D. Glazebrook, of Saint Pierre, was chosen President, and Dr. J. B. Hoag, of Knox, Secretary.

The principal features of that meeting were:

1st. Passing a preamble and resolutions setting forth that, in consequence of the advance in prices on flour, meat, groceries and dry goods, as well as a corresponding increase in the price of medicines, it was necessary for physicians to

imitate "the rest of mankind" and give another turn to the crank of prices; and forming a fee-bill, in conformity with said resolutions, which was signed by all the members, who pledged themselves to be governed by it.

2nd. Passing a rule that each physician should furnish each other physician with a list of those who were indebted to them, and refused to liquidate their claim, but were able to do so; and pledging themselves not to administer to such persons or their families until their former physician's bills had been paid.

3rd. Passing a resolution expressive of their willingness to practice for indigent widows and orphans, and all other proper objects of charity, whether they were compensated or not.

4th. The framing of a Constitution by which the Society was to be governed was deferred until the next meeting.

5th. The Society adjourned, to meet at Knox, August 6th, 1864.

The second meeting of the Society was held at Knox, Aug. 6th, 1864, pursuant to adjournment.

The main features of this meeting were:

1st. Adopting a Constitution by which the Society is to be governed.

2nd. Requiring each member to report one or more cases at each meeting, giving diagnosis and treatment.

3rd. Making it the duty of the President to appoint, at each meeting, one, to prepare an essay on some subject of interest, to be read at the next meeting.

4th. Dr. J. B. Hoag was appointed to produce an essay to be read at the next meeting. Subject—The duties and responsibilities of the physician.

5th. The Society adjourned, to meet at San Pierre, Oct. 1st, 1864, at 2 o'clock P. M.

The Society met at San Pierre, Oct. 1st., pursuant to adjournment.

The principal features of the meeting were:

1st. It was voted that before names were reported as delin-

quents a settlement should be demanded of them, and they informed that they had to settle within a reasonable time to be designated.

2d. It was voted that the members of the Society refuse to counsel with an irregular physician, except in company with another regular physician.

3rd. Several cases, with diagnosis and treatment, were reported.

4th. Dr. J. B Hoag read an essay on the "Duties and responsibilities of the physician," which he was requested to forward to the *Chicago Medical Journal* for publication, with a synopsis of the proceedings of this and the former meetings of this Society.

5th. Dr. S. B. Collett was appointed to prepare an essay to be read before our next meeting, the subject to be selected by himself.

6th. Adjourned, to meet at Knox, Nov. 5th, 1864, at 2 o'clock.

L. D. GLAZEBROOK,

J. B. HOAG, Secretary.

President.

NEURALGIA OVER THE SPINES OF CERTAIN VERTEBRÆ.

M. Trousseau observes in *L'Union Medicale*, during a clinic on neuralgia, that when it occupies the branches of the trifacial, it is always at the point of emergence of the ophthalmic branches, of the superior maxillary and of the inferior maxillary that the pain is most acutely felt. Then comes the frontal point where pain rarely fails, then the parietal point where it is frequently wanting, last of all the occipital nerve although not related to the lingual in origin, is almost always affected. He has observed an inexplicable and invariable thing in all cases recorded, that whether the trifacial alone was attacked or the occipital simultaneously affected, pressure

on the spinus apophyses of the first two cervical vertebrae was *always* very painful and in a certain number of cases immediately awakened pain in the affected nerves. If the nerves of the brachial plexus were attacked, pressure over the spinous apophyses of the last cervical vertebrae produced pain and it was the same when he explored the vertebral column in the case of intercostal, lumbar and sciatic neuralgia. M. Trousean lays it down as a rule, that in the various neuralgias the spinous apophyses are painful at a point nearly corresponding to that at which the nerve emerges, and not unfrequently the pain extends a little higher up the vertebral column.

NEW ANÆSTHETICS.—The *Intellectual Observer* mentions that Dr. Genges has addressed a note to the French Academy detailing some very interesting experiments performed by him in this direction. He has ascertained that a purified kerosoline, obtained from commercial petroleum oil, when vaporized by means of heat, will be found a valuable anæsthetic. He especially recommends as safer than chloroform, brom hydric ether, which not only is less inflammable than ordinary ethers, but possesses an exquisite odor.

New Use of Electricity.—The *Medical and Surgical Reporter*, of Philadelphia, describes a new application of electricity to household use, which promises to be of great public utility. The *electric bracket*, by Robert Cornelius, of that city, is designed as an attachment to the ordinary gas burner, "by which the gas may be lighted at any moment by the instantaneous production of a spark of electricity." It consists of an instrument by which simple friction of two surfaces is furnished by a movement as simple and easy as the turning of a key. The apparatus is attached to the bracket, and connected with the gas burner by a fine copper wire covered with silk, and terminating in a platinum point one-sixteenth of an inch from the aperture of the burner. Merely lifting a rubber plug from its bed in a cup lined with lamb's wool and silk, which constitutes the apparatus, produces a spark which darts from the platinum point to the burner and ignites the escaping gas.

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